(detritophagous and mud suckers) are nose feeders (Table 1.)

Based on the observation of the major gut contents and food preference under normal and, abnormal situations, the various food items may be described as:

1. Basic food - major part of gut contents throughout the year.
2. Secondary food - frequent in gut contents, but lesser than basic foods.
3. Obligatory food - forced to take under stress and food scarcity.
4. Incidental food - of rare occurrence.

Reduction in availability of 'preferred' prey resources

Degradation of favourable feeding sites leads to adverse qualitative and quantitative impacts on the growth of planktonic and benthic communities. This causes in turn serious disruption of the food chain and the energy cycle in the early phases of the life cycle of omnivorous, herbi-omnivorous, carni-omnivorous and carnivorous fish species. Food availability, the nature of feeding grounds and stimuli-feeding responses are less compatible with the adaptations/specialisations for torrential rapids in the hillstreams, particularly in case of bottom dwellers and feeders; the water current has played a significant role in their evolution.

Alterations in water quality are also brought about by the addition of silt, explosives, large rocks (a result of dam/barrage construction) as well as irrational fishing methods.

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22. A SUPPLEMENTARY LIST OF THE HOST-PLANTS OF INDIAN LEPIDOPTERA

Indian Lepidoptera are comparatively well known. The early stages and biology of all species of economic importance are known, but little emphasis has been placed on the remaining species. These constitute the vast majority and are of significance in bio-diversity studies.

The opportunistic rearing of eggs from gravid females and larvae discovered in the field

over a period of several years resulted in the discovery of the following, hitherto unreported, hostplants. This work was carried out in the Kumaon Himalaya in northern India, at an elevation of 1500 m above msl.

The taxonomy of several groups of moths is in need of review. In cases such as the *Spilarctia* Butler species of the *sagittifera* Moore group (Arctiidae), and what was previously the *Dasychira* Steph. genus (Lymantridae), we have not assigned specific status.

Rosa sp., mentioned as the hostplant of *Eterusia leptalina* Kollar, *Dasychira inclusa* Walker and *Spilarctia multiguttata* Walker, are hybrid tea roses rather than good species. In some cases, hostplants accepted in one part of the insect's range are refused in other parts. Thus, freshly emerged larvae of *Ambulyx liturata* Butler (Sphingidae) did not accept *Quercus leucotrichophora* A. Camus and *Q. floribunda* Lindley ex A. Camus (Fagaceae) in Kumaon, although it has been bred on *Quercus* Linn. in China by Mell (Bell and Scott 1937).

The preference of most local Arctiinae for *Pouzolzia zeylanica* (Linn.) Bennet & Brown, *Setaria megaphylla* (Steud.) Dur. & Schinz, and *Plantago major* Linn. is of interest. Many well known European Arctiinae are extremely polyphagous, the larvae having accepted, in addition to the known hostplants, such diverse items as potatoes, apples and even bread! The same cannot be said of the Himalayan species, except perhaps members of the *Spilarctia casigneta* group. We did not get the opportunity to try *Setaria megaphylla* on *Estigmene imbuta* Walker, but there seems a likelihood that it will accept it as readily as *Pouzolzia* Gaud. It, however, did not accept *Plantago major*.

Gardner (quoted by Sevastopulo 1949) notes that the larvae of *Polytela gloriosae* Fabr. (Noctuidae) feed on Liliaceae and Amaryllidaceae, species of *Zephyranthes* Herb. being specially favoured. In our experience, they much prefer *Gloriosa superba* Linn. to *Zephyranthes carinata* Herb., for they will not touch the latter so long as even a stem of the former is available. We have also bred them on *Zephyranthes* Herb.

All the following bred specimens are in our collection. We have followed Barlow (1982) in the arrangement of moth families.

Lepidoptera Species	Host Plant Species
Family: Zygaenidae	
Tripanophora semihyalina Kollar	*Camellia sinensis* (Linn.) Kuntze (Theaceae) *Wisteria sinensis* (Sims.) DC (Leguminosae) *Pelargonium* L'Herit (Geraniaceae)
Eterusia leptalina Kollar	*Pyrus communis* Linn. (Rosaceae) *Rosa* sp. (Rosaceae)
Agalope bifasciata Hope	*Crataegus crenulata* G. Koch (Rosaceae)
Family: Limacodidae	
Darna ?cotesi Swinhoe	*Cyperus paniceus* (Rottb.) Boeck. (Cyperaceae)
Family: Bombycidae	
Bombyx huttoni Westwood	*Morus nigra* Linn. (Moraceae)
Family: Sphingidae	
Dolbina inexacta Walker	*Olea glandulifera* Wall. ex DC (Oleaceae)
Family: Notodontidae	
Chadisra bipars Walker	*Grewia optiva* J.R. Drummond ex Burret (Tiliaceae)
Family: Arctiidae	
Spilarctia sp. of the *sagittifera* group	*Dioscorea bulbifera* Linn. (Dioscoreaceae) *Cuscuta reflexa* Roxb. (Convolvulaceae) *Strobilanthes dalhousianus* (Nees) C.B. Clarke (Acanthaceae) *Plantago major* Linn. (Plantaginaceae)

Lepidoptera Species	Host Plant Species
	Pouzolzia zeylanica (Linn.) Bennet & Brown (Urticaceae)
	Setaria megaphylla (Steud.) Dur. & Schinz (Graminae)
Spilarctia multiguttata Walker	*Rosa* sp. (Rosaceae)
	Dioscorea bulbifera Linn. (Dioscoreaceae)
Estigmene imbuta Walker	*Pouzolzia zeylanica* (Linn.) Bennet & Brown (Urticaceae)
Estigmene quadriramosa Kollar	*Plantago major* Linn. (Plantaginaceae)
	Taraxacum sp. (Compositae)
	Pouzolzia zeylanica (Linn.) Bennet & Brown (Urticaceae)
Pericallia galactina von. d. Hoev	*Pouzolzia zeylanica* (Linn.) Bennet & Brown (Urticaceae)
	Setaria megaphylla (Steud.) Dur. & Schinz (Graminae)
Pericallia imperialis Kollar	*Plantago major* Linn. (Plantaginaceae)
	Pouzolzia zeylanica (Linn.) Bennet & Brown (Urticaceae)
	Setaria megaphylla (Steud.) Dur. & Schinz (Graminae)
Callimorpha plagiata Walker	*Pouzolzia zeylanica* (Linn.) Bennet & Brown (Urticaceae)
Macrobrochus gigas Walker	Lichens
Family: Lymantridae	
Euproctis latifascia Walker	*Quercus leucotrichophora* A. Camus (Fagaceae)
Euproctis plagiata Walker	*Glochidion velutinum* Wight. (Euphorbiaceae)
Euproctis anguligera Butler	*Glochidion velutinum* Wight. (Euphorbiaceae)
Dasychira inclusa Walker	*Quisqualis indica* Linn. (Combretaceae)
	Rosa sp. (Rosaceae)
Dasychira sp.	*Bauhinia vareigata* Linn. (Leguminosae)
Ilema nigritula Walker	*Dioscorea bulbifera* Linn. (Dioscoreaceae)
Family: Agaristidae	
Episteme adulatrix Kollar	*Dioscorea bulbifera* Linn. (Dioscoreaceae)
Family: Noctuidae	
Cocytodes coerulea Guenee	*Bohemeria platyphylla* D. Don (Urticaceae)
Thysanoplusia orichalcea Fabricius	*Lepidium virginicum* Linn. (Cruciferae)
Polytela gloriosae Fabricius	*Gloriosa superba* Linn. (Liliaceae) preferred over *Zephyranthes carinata* Herbet (Amaryllidaceae)
Family: Epiplemidae	
Epiplema reticulata Moore	*Jasminum dispermum* Wallich (Oleaceae)
Family: Pyralidae	
Agathodes ostentalis Huebner	*Erythrina suberosa* Roxb. (Leguminosae)
Family: Pieridae	
Pontia daplidice Linne	*Lepidium virginicum* Linn. (Cruciferae)
Artogeia canidia Sparrman	*Lepidium virginicum* Linn. (Cruciferae)
Family: Nymphalidae	
Symbrenthia lilaea Hewitson	*Bohemeria platyphylla* D. Don (Urticaceae)
Precis iphita Cramer	*Aechmanthera tomentosa* Nees (Acanthaceae)
Pareba issoria Huebner	*Debregeasia longifolia* (Burm. f.) Wedd. (Urticaceae)

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23. ON THE PREDATION OF THE GIANT REDEYE *GANGARA THYRSIS* (FABRICIUS) (FAMILY : HESPERIIDAE; ORDER : LEPIDOPTERA)

The Giant Redeye *Gangara thyrsis* Family Hesperiidae is not an uncommon butterfly in Bangalore. It is often seen in gardens around its food plants — *Areca lutens, Cocos nucifera* and other palms.

Observations on the predators of the Giant Redeye were made on nine *Areca lutens* plants ranging in height from 1-4 m, and frequented by these insects. It was observed that the bonnet macaque (*Macaca radiata*) and the house crow (*Corvus splendens*) fed on the larvae and pupae of the Giant Redeye.

One individual of a troop of bonnet macaques which visited the premises where observations were made, systematically searched all the palms for larvae and pupae. The macaque searched the leaves rolled up by the larvae, opened them, and ate the larvae (which have long, loosely attached, white thread-like outgrowths amidst which are red spots).

Similarly, the macaque opened the tubes made of palm fronds which conceal the pupae and ate the pupae.

A house crow which visited the premises seemed to have noticed a pupa of the Giant Redeye. It gave up its efforts to procure the pupa as it was unable to balance itself on the slender palm fronds. A good half hour had elapsed before the bird returned and perched on the neighbouring *Colocasia* sp.(?) growing amidst the palms. From the new perch, it successfully ripped open the tube and swallowed the pupa whole.

These are probably new records of predators of the Giant Redeye.

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24. MATING BEHAVIOUR OF THE COMMON MORMON *PAPILIO POLYTES* (FAMILY: PAPILIONIDAE)

During February 1998, I was studying the metamorphosis of different species of Papilionidae and Nymphalidae in my home laboratory. The Common Mormon (*Papilio polytes*) was one of the species reared successfully. After a pupal period of ten days, a female Common Mormon emerged from its chrysalis at about 0900 hrs. The Common